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IT Educational Center

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QA AUTOMATION MODULE AT COURSE STRUCTURE* 2024

PROGRAMMING LANGUAGE FUNDAMENTALS **80 hours**

Basics · Hardware and Software Architecture · Computer and Networking Basics · Software Infrastructure and Applications · Numbering Systems Notation · Open Sources and Open Standards · Development Platforms Integrated Development Environment · IDE Eclipse Basics · Compiler and Builder · Programming Language Basics · Data Types · Operators · Statements · Functions · Symbol Presentation and Coding · Array · Basic Programming Patterns · C Practicing · Sequential and Binary Search · Sorting · Reversing · Merging · Object Oriented Programming · OOP Principles (Encapsulation, Inheritance) · Polymorphism · Classes and Objects · Java Basics · OOP Implementation in Java · Java Practicing

CORE JAVA FUNDAMENTALS **100 hours**

Introduction in Java and JVM · Data Types (Primitives and Classes) · Operators and Methods · Basic Algorithms · Arrays · Java Inheritance · Interfaces · Java Collections Framework (JCF) · Iterator Design Pattern · Exceptions · Input-Output Streams · JUnit — Java Automation Testing · Wrapper Classes · String / String Builder

SOFTWARE TESTING **80 hours**

Why is testing necessary · Testing Objectives, Roles of Testing · Model QA-QC-Testing, V&VFundamental test process, Test Plan · The psychology of testing · Software development models (V-Model, RAD, Agile) · Test levels · Test types · Identifying test conditions and designing test cases · Choosing a test technique · Test organization · Test plans, estimates, and strategies · Test progress monitoring and control · Configuration management · Risk and testing · Incident management · Types of test tool · Effective use of tools: Potential benefits and risks · Introducing a tool into an organization · Test and Incident management tools (Bugzilla/ Testopia or Jira) · Linux basic principles · Load testing

SOFTWARE TESTING AUTOMATION **132 hours**

Basic autotests concept, HTML, DOM · Setting up Browser, Project, IDE · Recording tests with Selenium IDE · Locating page elements with ID, Name, Class, using CSS and Xpath · Using FireBug and FirePath plugins · Selenium webdriver commands · Using projects patterns — PageObject and PageFactory · Creating test data generators · Assertions and Expectations Infrastructure for building and running tests — Maven · Testing frameworks — JUNIT or TestNG · Spring and Selenium · Running tests on grid, local network and cloud service · Running tests in parallel · Continuous integration — Jenkins and TeamCity · Logging, screenshotting and video reports

Database and SQL Basics · Relational Databases · Tables · Logical Structure · Keys · Indexes · SQL Development Platform · MongoDB · MongoDB in Cloud · CRUD Operations: Create, Read, Update, and Delete Data · Mongo Aggregation

TOTAL THEORETICAL HOURS **132 hours**
PRACTICAL WORK ON REAL PROJECTS **80 hours**

TOTAL HOURS **212 hours****

* — Tel-Ran educational center can make changes and adjustments to this program due to the relevance of the studied technologies without losing the total number of study hours without notifying students. The online QA English course is free and optional.
** — doesn't include FREE webinars that are held regularly on topics covered in class and on homework analysis